

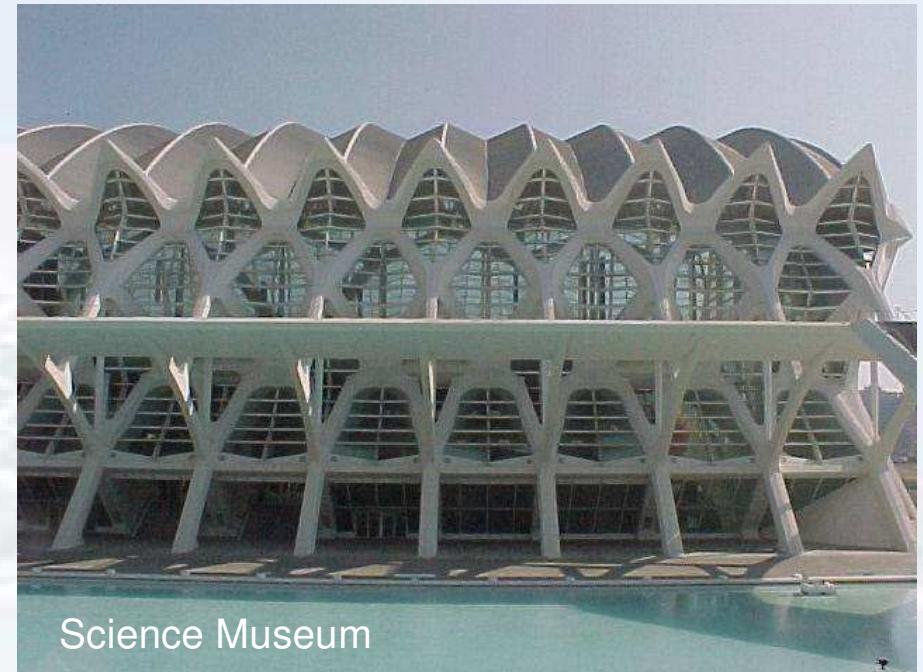
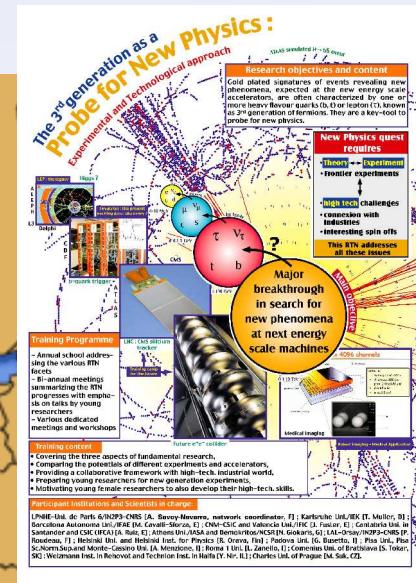
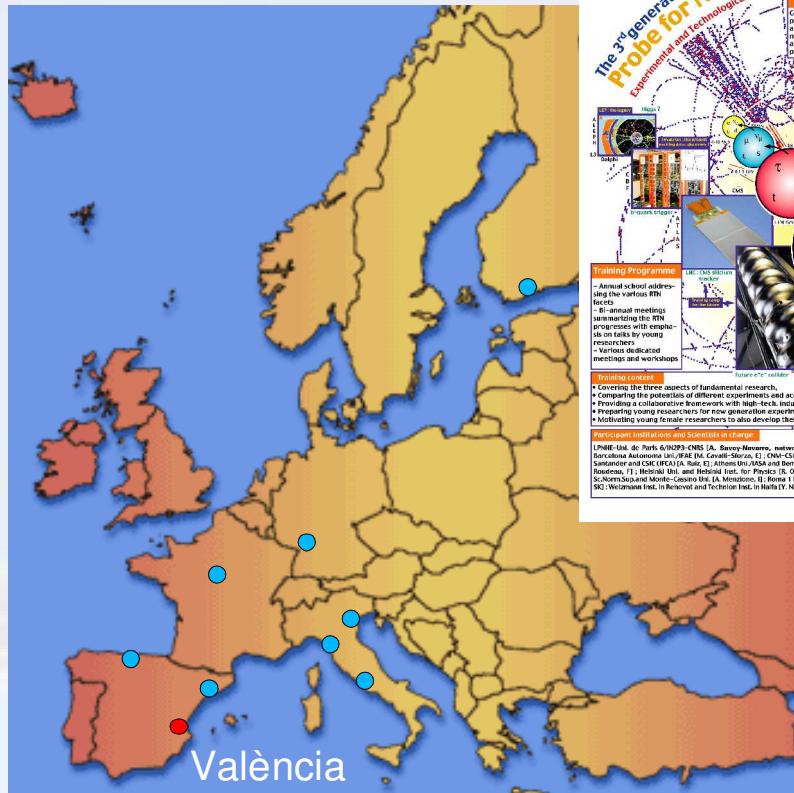
# **Proposal by IFIC-València for membership in the CDF collaboration**

S. Martí García  
S. Cabrera

CDF Exec. Board. March 3rd, 2005

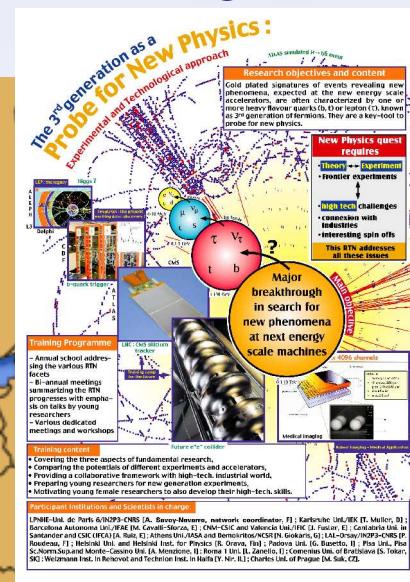
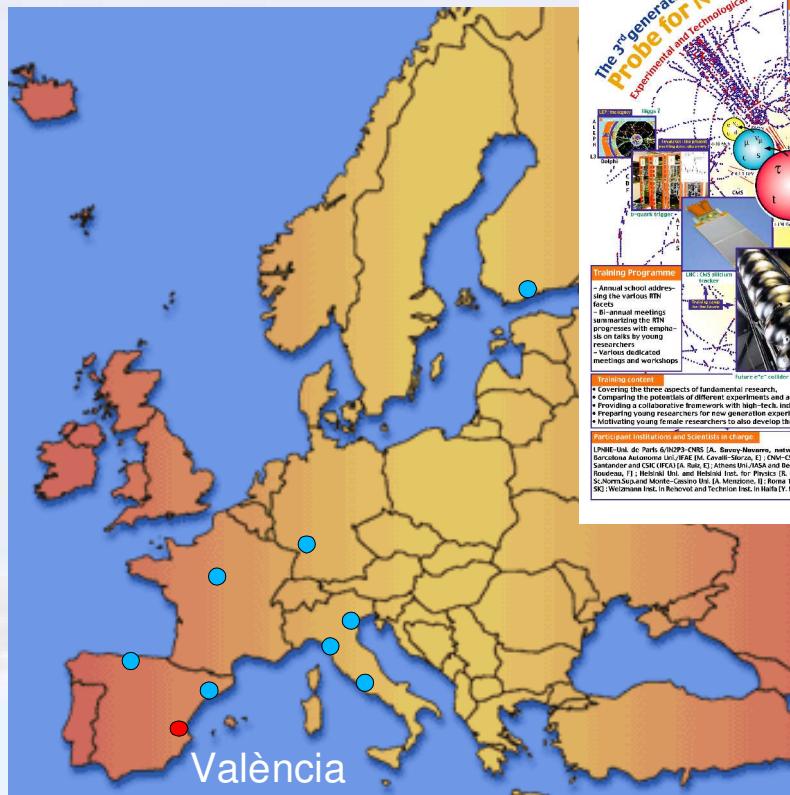
# Institut de Física Corpuscular (IFIC)

- Joint research institute of:
  - Spanish Research Council (CSIC)
  - Universitat de València-Estudí General
- IFIC participates among other CDF institutions in the EU RTN



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MUSEU DE LES CIÈNCIES PRÍNCIPE FELIPE | CIUTAT DE LES ARTS I LES CIÈNCIES

# CONFERÈNCIA

## LES REVOLUCIONS PER VINDRE EN LA FÍSICA DE PARTÍCULES

Chris Quigg  
Investigador científic del Fermi National Accelerator Laboratory

Divendres, 4 de març del 2005, de 19.00 a 20.00  
Auditori Santiago Grisolía  
Museu de les Ciències Príncipe Felipe

La pròximada ens esperen increïbles

# IFIC: Experimental department

## High Energy Physics

### ★ LHC-ATLAS:

- ★ TiCal
- ★ SCT
- ★ GRID computing
- ★ Software

### ★ K2K

### ★ Antares

### ★ B-Factory/BaBar

### ★ LEP/Delphi

### ★ Accelerator Physics

### ★ Detector R&D

## Nuclear Physics

### ★ $\gamma$ -Spectroscopy

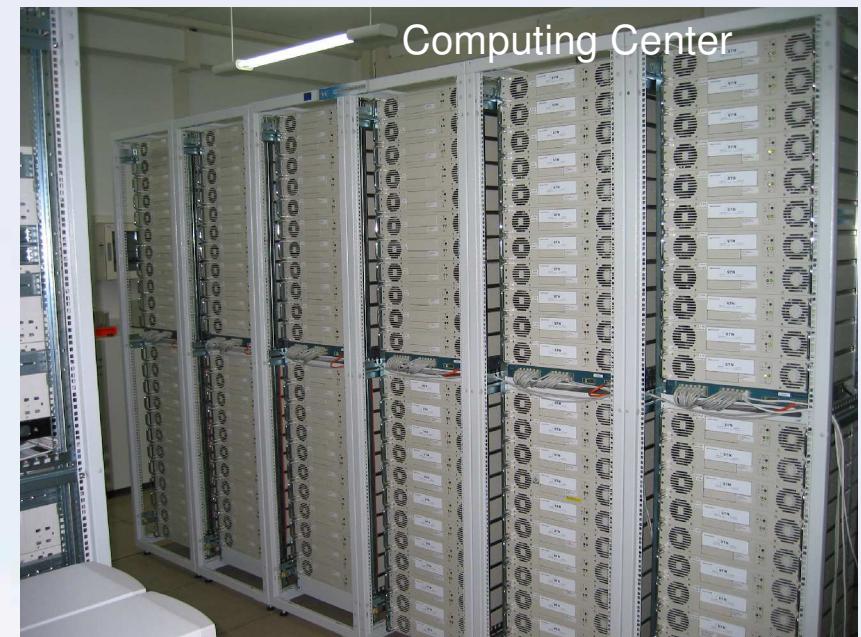
- ★ NTOF
- ★ ISOLDE
- ★ FAIR, ALBA

### ★ Nuclear Reactions

- ★ Hades
- ★ TAPS
- ★ Integral

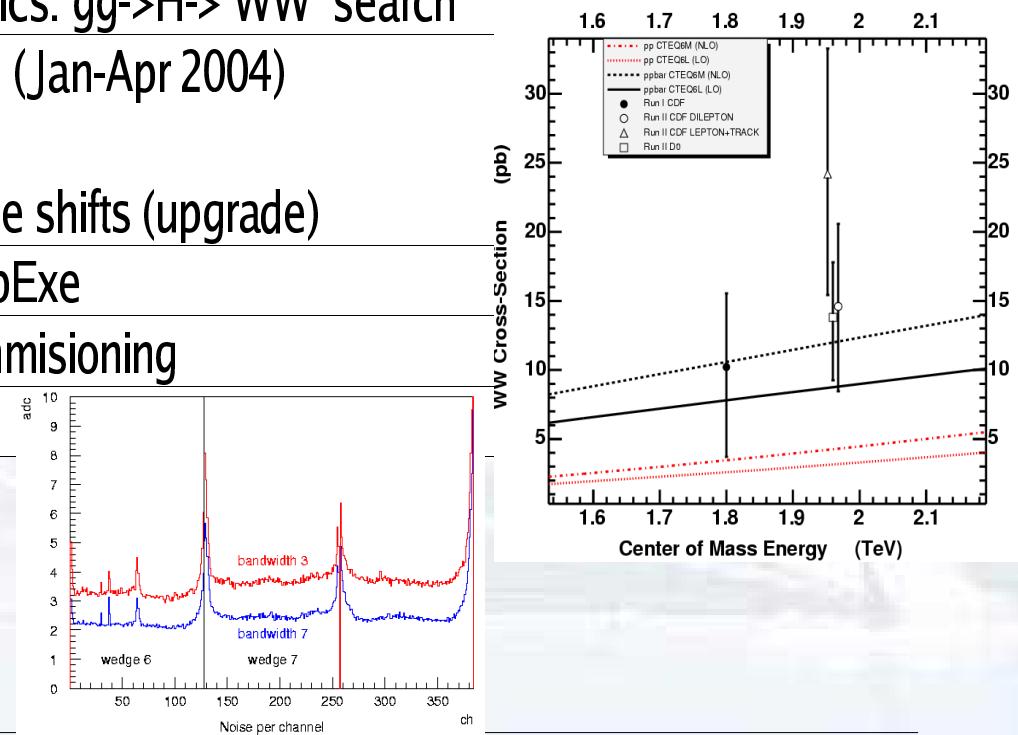
## Medical Applications

- ★ Nuclear Medicine
- ★ CIMA



# Current and past activities within CDF

Name	Task	Description
S. Cabrera (Cantabria) (Duke)	Detector upgrade	TOF PMT's calibration in B0 with/without B TOF PMT's installation at assembly hall
	CDF II Software	SVXSIM geometry validation Tunning of SVX charge deposition models
	CDF II Analysis	Coleader of the diboson EWK subgroup (june 2003) EWK: Heavy diboson production xsec (WW, WZ & ZZ) Exotics: gg->H-> WW search
	Shifts	ACE (Jan-Apr 2004) CO Cable shifts (upgrade)
	Calib. DB	CalibExe
S. Marti García (Liverpool)	L00	Commisioning
	Shifts	CO



# Personnel

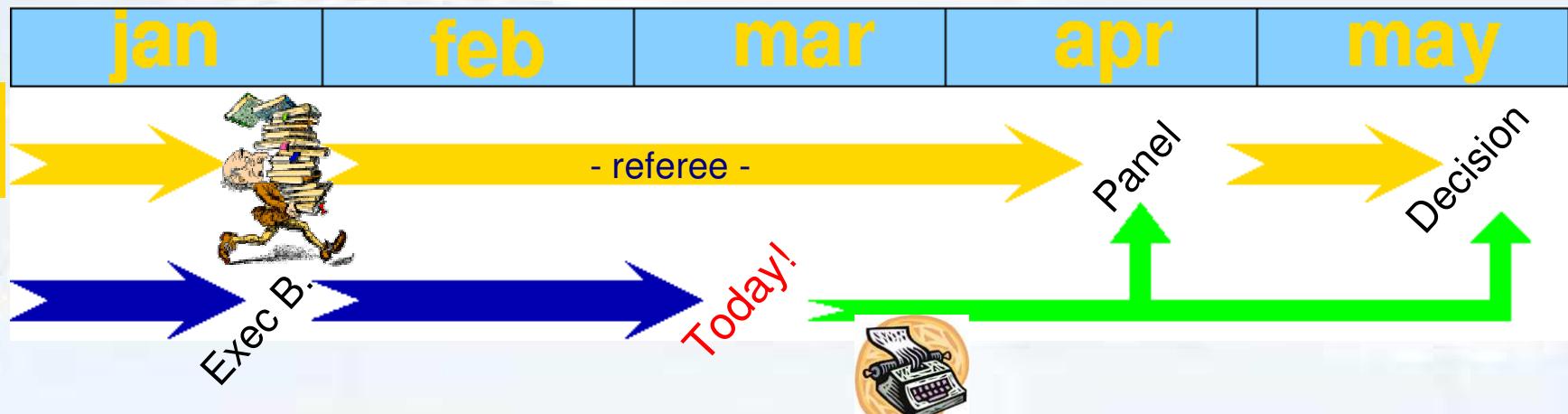
- Participants as in IFIC-València proposal to CDF

Name	Position	% CDF	% FNAL	Other
S. Martí García	Senior Research Faculty	100	25	
S. Cabrera	Junior Research Faculty	100	100	
V. Mitsou	EU-RTN Post-doc	75	25	ATLAS
J. Sánchez	Senior Research Faculty	25	10	GRID
Good candidate exists	PhD Student	100	50	
#2	PhD Student	100	50	

- Total = 5 FTE (PhD students incl.)
- Permanently based at FNAL: 2 ~ 3 FTE (PhD students incl.)

# Proposals schedule

- Submitted proposals to
  - CDF (first presented in January)
  - Spanish funding agency (CICYT)
    - General expenses (common fund, PCs ...)
    - Computing (dCAF in València: CPUs and storage)
    - Travel budget (attend conferences, visits to FNAL ...)
    - Allowance (for personnel based at FNAL)
    - Personnel (2 postdocs, 2 PhD students, 1 IT)



# Personnel

- As in our proposal to Spanish funding agency (CICYT)
  - Funding requested for postdoc contracts and PhD students grants

Name	Position	Ends	% CDF	% FNAL	Other
S. Martí García	Senior Research Faculty		Perm.	100	25
S. Cabrera	Junior Research Faculty		2010	100	100
V. Mitsou	EU-RTN Post-doc		2006	75	25 ATLAS
J. Sánchez	Senior Research Faculty		Perm.	25	10 GRID
Post Doc #1	CICYT funded		2008	100	100
Post Doc #2	CICYT funded		2008	100	100
PhD student #1	CICYT funded		2009	100	50
PhD student #2	CICYT funded		2009	100	50
IT	CICYT funded		2008	100	50

Legend

Existing contracts funded by other sources  
 Contracts that may be funded by CICYT

# Proposal to CICYT

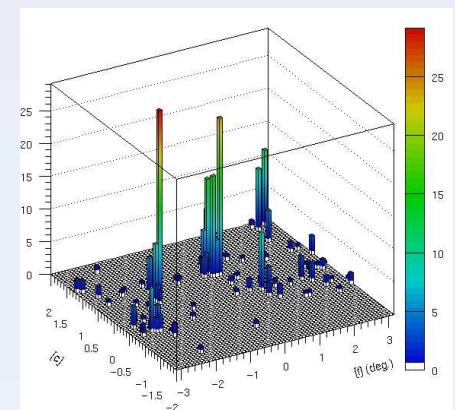
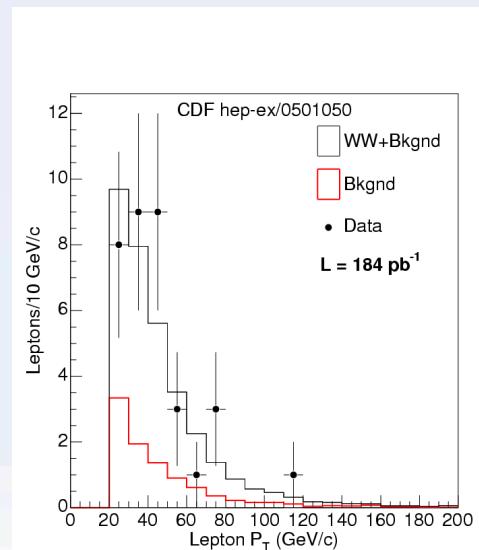
- Funding agency wants to hear
  - 1) We are going to do physics and obtain nice results
  - 2) Emphasize the training aspects:
    - 2.1) PhD students
    - 2.2) Postdocs

## ① Physics Analysis

- Diboson
- Top physics

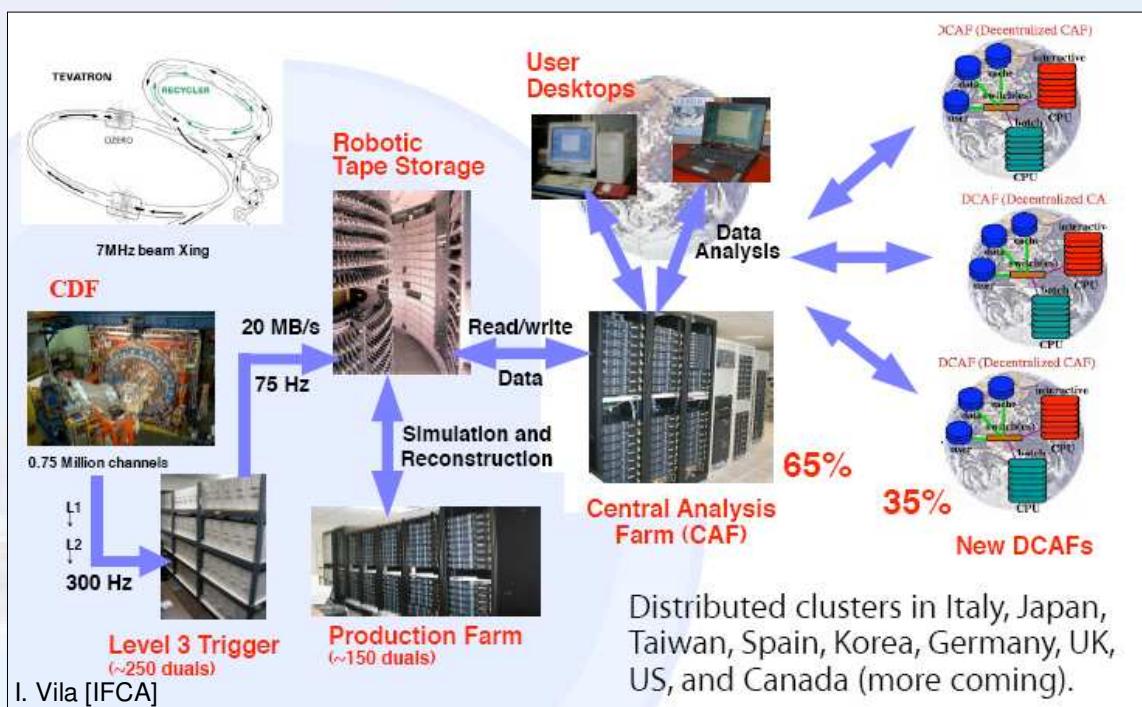
## ② Detector operations

- Online & offline calibration framework
- Does this affect to other Spanish institutions that are already in CDF?
- Other sources of income:
  - Generalitat Valenciana: (2004 & 2005) 11,000 €



# Computing

- Plan to install a dCAF in València
- IFIC-València computing center:
  - It manages its own resources
  - Upgrade to host a LHC Tier 2
  - GRID: LCG flavor
  - ATLAS data challenge
  - BABAR: MC generation

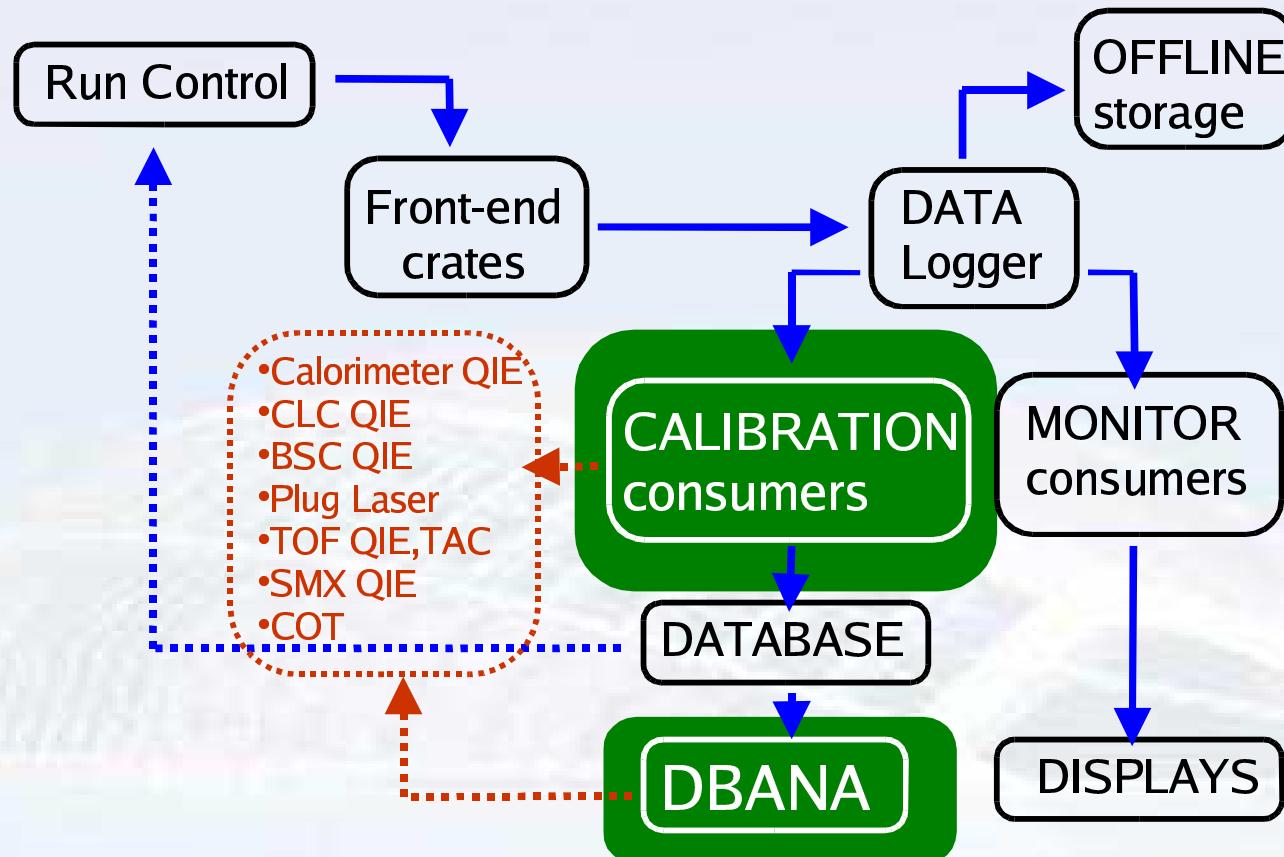


- Why there exists an interest on CDF?
  - LHC experiments to come in late 2007
  - CDF represents a real testbed for LCG
  - LCG sake: contribute to LCG from experience, not just from design
- València dCAF will use part of the existing resources plus specific ones if funded by CICYT

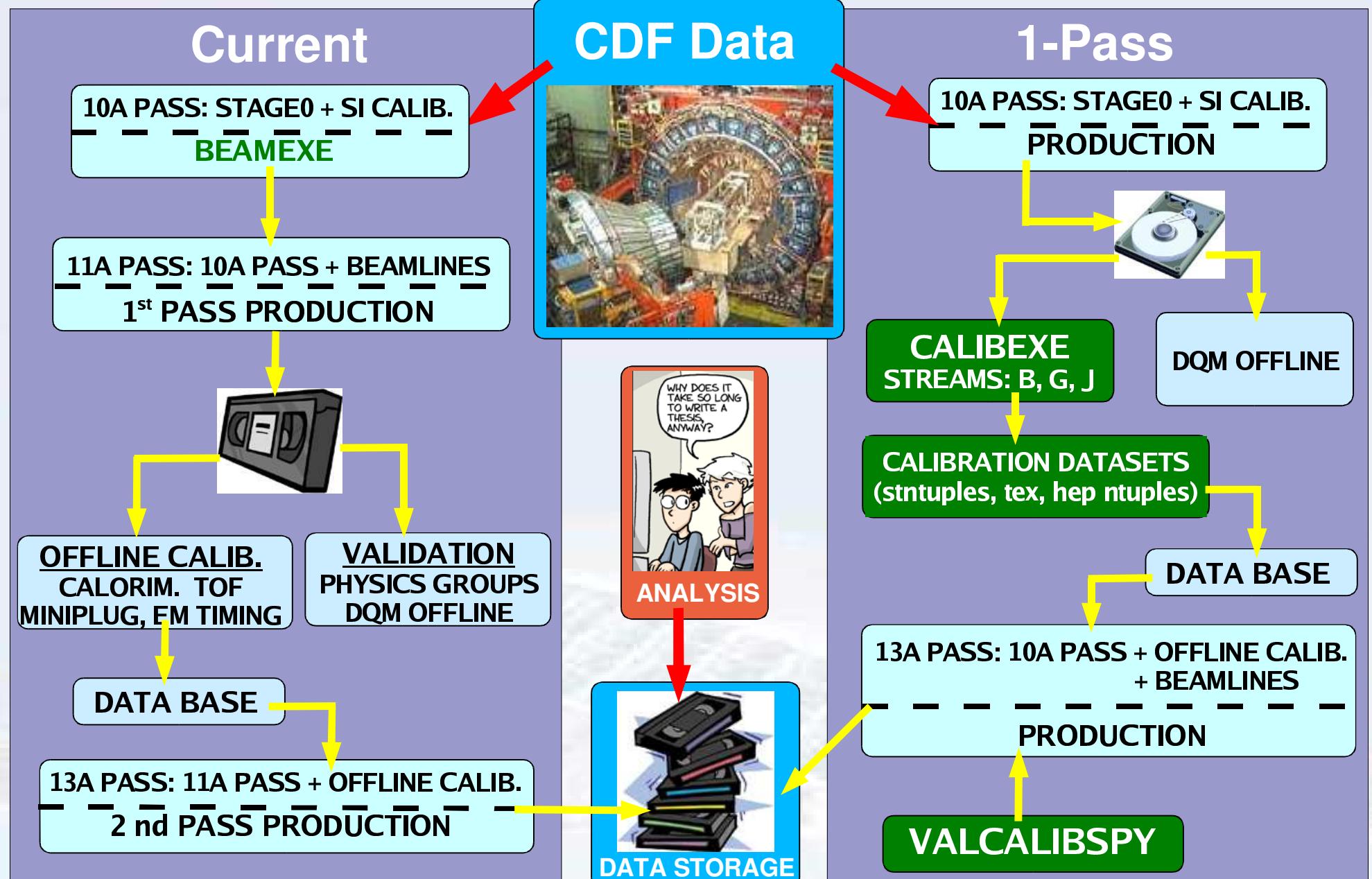
Item	Existing	Requested CICYT
CPUs	192 @ 1.4 GHz	50 @ >3GHz
Disk Storage	8 TB	20 TB
Tape Storage	Up to 140 TB	20 TB

# Contribution to the CDF online

- Maintenance of the **ONLINE Calibration Consumer (CalibConsumer)** framework and **DBANA** framework in conjunction and coordination with the **ONLINE CONSUMER MONITORING GROUP**
- Coordination, supervision and implementation of the synchronous updates to calibration consumers: Admem QIE, SMX QIE, TOF QIE and TAC, plug laser and COT CTT



# Moving towards 1-pass production schema



# IFIC-València offline contributions to CDF

- **CALIBEXE:**
  - Development:
    - Revisiting pre-existing modules in BeamExe
    - Putting together all the offline calibrations.
  - Testing:
    - 20 pb-1 test in the CAF/ tarball for FARMS
    - Maintenance (CVS librarian).
- **CALIBDB co-convenor:**
  - Meetings: off-Thursdays 10:30 @ Cloud Chamber
  - Coordinate, supervise and implement the synchronous updates for all offline calibrations within the 1-pass production offline scheme.
- **CALIBRATION VALIDATIONS** (Medium-term):
  - ValCalibSpy: validation of offline calibrations and their access from Production: monitor distributions sensitive to calibration problems, monitor calibration constants trends, etc
- **CALIBRATION DATABASE ISSUES** (short-term):
  - Modifications of the DB schema: creation of new tables as requested by detector groups.
  - Help sub-detectors in DB access: provide software tools for filling and reading back the calibration constants.

# Summary

- IFIC-València submitted proposals for:
  - joining CDF
  - funding request to CICYT
    - contracts for postdocs, grants for PhD students
    - computing in order to install a dCAF
- IFIC-València contribution to CDF operations
  - Online & offline calibration framework
  - Some members of the team already in CDF
    - Work is undergoing: CalibExe
- Thanks: B. Heineman, D. Litvintsev, Y-K. Kim, A. Kotwal, P. Maksimovic, P. Murat, L. Ristori, R. Roser, W. Sakumoto, A. Savoy-Navarro & L. Sexton

# Facilities: IFIC computing center

- 192 CPUs
  - Athlon K7 @ 1.2 Ghz
  - Athlon K7 @ 1.4 Ghz
- RAM: 1 Gbytes
- HD: 40 Gbytes
- NIC: FastEthernet (100 Mps)

- 8 Intel servers
- CPU: Pentium 4 @ 3.2 GHz
- RAM: 1 Gbytes
- HD: 120 Gbytes
- NIC: Gigabit + FastEthernet



- 8 disk servers: 8 TB
- Tape silo: 140 TB
  - 700 slots: STK L700e
  - 4 x drives HP LT02 (200 GB, 400 GB comp.)



IFIC-València Proposal

CDF Exec Board, March 3 rd, 2005



# CalibExe

- **STARTING POINT:**
  - BEAMEXE: STREAM DOWN of PRODUCTION.
  - Currently REVISITING/DOCUMENTING existing modules;
    - TrackingMon, ZVertexValidationModule, PrescaleModule, SvtBeamLineModule, BeamWidthModule, fitBeamModule
  - **NEW MODULES:** offline calibrations
  - CEM, MinimumBias, PEM, CHA, WHA calibrations, PES alignment/bad channels, EM/HAD Timming, Miniplugin and TOF
  - **FUNCTION:** to produce **CALIBRATION DATASETS** in all formats (HEP ntuples, StNtuples, TEX files, ROOT files)
  - **STATUS:** feedback from 20 pb-1 test in the CAF.
  - **SHORT TERM:**
    - Preparing tar-ball for the FARMS, planning output concatenation.
    - Revisiting PrescaleModule/SvtBeamLineModule.
  - **DOCUMENTATION.**
  - **MEETINGS: OFF-THURSDAYS 10:30 @ Cloud Chamber**

# ValCalibSpy

- OFFLINE monitoring of CDF CALIBRATIONS.
- FUNCTION:
  - DBANA ⇔ online calibrations, VALCALIBSPY ⇔ offline calibrations
  - Monitor DISTRIBUTIONS very sensitive to CALIBRATION PROBLEMS.
  - Monitor TRACE PLOTS, TRENDS of calibration constants.
  - VALIDATE the ACCESS of PRODUCTION to the DATABASE.
- FRAMEWORK:
  - NTUPLING CODE: AC++ offline framework + API (Application program Interface to the DATABASE)
  - NTUPLE: StNtuple/ HEP ntuples.
  - MONITORING: borrow PHYSMON infrastructure (thanks Collin & H.Frisch)
- DOCUMENTATION.
- To be used by CO-offline-shifter
-

# Calibration DB

- MAINTENANCE of DB SCHEMA:
- Creation of NEW TABLES NEEDED by the offline calibrators.
- HELP detector groups with tools to FILL/READ calibration constants.
- COORDINATE the LOAD of OFFLINE CALIBRATIONS into the CDF DATABASE within the 1-pass PRODUCTION SCHEME
- DOCUMENTATION

